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THE NEW ENGLAND BOTANICAL CLUB

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DELPHINIUM CONSOLIDA IN AMERICA, WITH A CONSIDERATION OF THE STATUS OF DELPHINIUM AJACIS.

Bayard Long.

For at least a century *Delphinium Consolida* held an almost uninterrupted and an unchallenged place in the introduced flora of America.

In 1814 we find Pursh in his *Flora* noting the "common Lark-spur... In fields and woods. Pa. and Va." Nuttall in 1818 in his *Genera* regards it as "naturalized." In Eaton's *Manual of Botany*, as early as the Fifth Edition of 1829, it is also considered "Naturalized." Torrey and Gray in 1838 record it "In fields and along roadsides; introduced from Europe and almost naturalized." In the First Edition of Gray's *Manual* in 1848 we find: "D. Consolida, the common annual Garden Larkspur ... has escaped from gardens into the roadsides in some places."

This "common annual Garden Larkspur" appears to have been invariably described as having smooth capsules in our earlier American botanies, a fact very evidently due to a faithful copying and recopying of European descriptions of *Delphinium Consolida*. In 1859, however, Darby described the plant with "Carpels smooth or pubescent"[1] but apparently not till 1890 in Watson and Coulter's Edition of Gray's *Manual* is it recognized that the pubescent-fruited plant escaping from gardens is *Delphinium Ajacis*, a species well known in Europe. From this time *D. Consolida* shared its place in American treatments with *D. Ajacis*.

[1] Darby, Botany of the Southern States, 207 (1859).

And so through all the standard works, continuing into the First Edition of Britton and Brown's *Illustrated Flora,* the several editions of Britton's *Manual,* Small's *Flora of the Southeastern United States, Gray's New Manual,* and many local floras, the right of *Delphinium Consolida* to a place among our introduced plants stood unquestioned, but in 1914 Dr. N. L. Britton in the new edition of the *Illustrated Flora* published this concise statement: "Delphinium Consolida L., a European species which has a glabrous style and capsule, is widely recorded as naturalized in the eastern United States,. . . but all specimens examined prove to be *D. Ajacis.*"

A sweeping statement like this, even though from such an authoritative source, always leads one to examine critically the material within his own reach, especially if it has not been a part basis of the original observations. In the present case this was by no means in criticism but for verification, in the regular work of endeavoring to keep somewhat abreast of the botanical times.

The material in the Herbarium of the Academy of Natural Sciences proved, upon the most casual examination, to be without exception *D. Ajacis.* But, to my surprise, in the collection of the Philadelphia Botanical Club two sheets of quite authentic *D. Consolida* were found. The Herbarium of the University of Pennsylvania — well known to hold valuable material supporting old local records — was found to contain two collections of true *D. Consolida,* one being a duplicate of the material already seen in the Philadelphia Botanical Club Herbarium, but the other representing a third and new locality. Search at the Philadelphia College of Pharmacy revealed a fourth collection. After considerable correspondence and much disappointment from both large and small herbaria, a fifth American specimen was found in the herbarium of Mr. E. B. Harger of Connecticut.

From Mr. Harold St. John I have learned that there are no American specimens of the discredited species in the Gray Herbarium. Through the courtesy of Dr. J. M. Greenman the series at the Missouri Botanical Garden has been sent me for examination and I have found it to contain no authentic material of *D. Consolida* from America. From the National Museum at Washington, Mr. Paul C. Standley has written upon my inquiry that after careful examination of their material he was unable to find a single sheet of the species from North America.

Mr. W. W. Eggleston, learning of my search for American *D. Con-*

solida through Mr. Standley, stated that he had seen no United States specimens of this species although he had examined all the material at Cambridge and New York — corroborating Dr. Britton's view and that of Mr. St. John. Mr. Eggleston has been interested in this species (particularly in relation to drug-plant investigations being made by the Department of Agriculture) and on expressing a desire to see the plants which had come to my attention, I sent him the several specimens and have received his verifying determination upon all of them.

To return to this American material of *Delphinium Consolida:*— One of the sheets in the Herbarium of the Philadelphia Botanical Club, collected "on ships ballast below the Pennsylvania Salt Works, Philadelphia" many years ago by that indefatigable ballast-ground specialist, Isaac Burk, is rather of historical interest than of value for the present distribution of the species. The material found at the University of Pennsylvania belongs, certainly in part at least, to the same class. Besides additional specimens of the Burk collection there is material from "Camden, N. J." collected in 1878 by Isaac Martindale. Although actual evidence on the label is lacking, it is in all probability to be associated with the record in Britton's Catalogue of "Camden: On ballast grounds — Martindale." [1] In the Martindale Herbarium at the Philadelphia College of Pharmacy there is a further collection of *D. Consolida* from Camden, New Jersey, made by C. F. Parker in 1882.[2] Curiously enough there appears to be no material here of Martindale's 1878 collection of the plant, but there are several *earlier* collections of what he took to be *D. Consolida.* (These are however *D. Ajacis.*) Evidently considering he already had the species well represented from Camden in his herbarium, he used this 1878 material for purposes of exchange.

But the second specimen in the collection of the Philadelphia Botanical Club, labelled "Grass field — New Egypt, N. J.," proves to be of some import. The habitat was so definitely suggestive of as real an occurrence in our flora as is shown by *D. Ajacis* that the collector, Mr. J. H. Grove of New Egypt, was communicated with. He wrote that he distinctly remembers collecting the plant in 1907, that he has

[1] Britton, Cat. Pl. N. J. 40 (1889).

[2] This material — of three specimens showing both flower and mature fruit — is named *Delphinium divaricatum* Ledeb. on Parker's label, and may possibly bear some relation to the reputed occurrence of this species in America.

since seen it a number of times in the same field, most frequent when the field was sown to grain, but that he had not had occasion to visit the locality during the last several years.

The records in the recent *Catalogue of the Flowering Plants and Ferns of Connecticut* have proved in general to have been so carefully compiled that it was felt advisable to investigate the reported occurrence of *D. Consolida* from several localities in that State. Though the records of Dr. E. H. Eames and Mr. Charles H. Bissell proved to be based upon *D. Ajacis*, through the kindness of Mr. E. B. Harger I was able to examine his specimen from Middlebury, Connecticut, and verify it as authentic *D. Consolida*. His plant is from "newly-seeded grass-land." Unfortunately his business that day, as he explains, was not botanical and he had no opportunity to observe fully the occurrence of the species.

As regards both the New Egypt and the Middlebury locality it can not therefore be asserted with confidence what the exact status of the plant is at the present time, but I think it will be agreed the probabilities are that, in the matter of persistence at a locality, this occurrence of *D. Consolida* is quite as worthy of note as a collection of its near ally, *D. Ajacis*. I feel confident that many stations, upon which an American range for *D. Ajacis* has been determined, would be difficult to verify in the field at the present time. I am inclined to think that the occurrence of this species, like many other garden annuals, is largely due to its continual escaping from gardens rather than its ability in actually establishing itself.

Although *Delphinium Ajacis* seems to be tacitly accepted today by the authors of our manuals as a naturalized plant, investigation into this matter would seem to show that its status as such is not based upon too conclusive or convincing grounds. Without doubt there are scattered localities where the species may be more or less well naturalized, but it seems equally clear that only a small percentage of the specimens to be found in herbaria represent actual cases of naturalization — the great majority, merely casual escapes, the collection of which, if not completely destroying the possibility of a permanent colony, has at least often greatly reduced that possibility.

There is a rather general agreement among the Philadelphia collectors who know *D. Ajacis* outside the garden that its occurrence is commonly that of single or few plants on waste ground, roadsides, railroad banks, and that it rarely tends to form a really permanent

station. Dr. John K. Small, however, in his *Flora of Lancaster County* [Pennsylvania] records the plant as "Rather common in fields and waste places" in the central part of the county. A number of specimens collected about Lancaster offer supporting evidence. Mr. E. G. Vanatta, who has made a collection of some size of the more conspicuous plants about Chestertown, Maryland, reports the species as frequent at a locality near the town, in a field and upon the loose gravel of nearby railroad banks. Mr. David McCadden tells me that the plant is common at one place near Norristown, Pennsylvania, along the sides of a railroad-cut.[1] In the Martindale Herbarium is a specimen of *D. Ajacis* bearing the label "Generally in grain fields, Byberry, [Philadelphia]. Frequent 1862."

On the other hand, correspondence and further communication with numerous Philadelphia collectors, has brought forth in general a rather different expression of opinion than the immediately foregoing. Mr. Stewardson Brown, Conservator of the Herbarium of the Philadelphia Academy, assures me that he has never seen *Delphinium Ajacis* except upon very evident dumps, mixed with other plant rubbish that might have been thrown out of a yard in cleaning up. He has never noted it any more established than Garden Petunias and Nasturtiums. Dr. C. D. Fretz, the authority on the plants of Bucks County, Pennsylvania, writes me that the plant is found occasionally along roadsides in Sellersville and other places. He says, further: "I of course consider it very rare. My impression is that it is not at all naturalized, but merely an escape from gardens." Mr. Harold W. Pretz, who has been energetically engaged for a number of years in thoroughly exploring Lehigh County, Pennsylvania, would accredit it with only a spontaneous occurrence "on or in the vicinity of ash piles on comparatively new dumped ground" [2] and is willing to subscribe to an opinion "that it is not established anywhere in the local region." Mr. Alexander MacElwee, who made extensive collections in the Philadelphia region some years ago and became very familiar with the flora, writes me: "Concerning Delphinium Ajacis I would say *decidedly* that it is not a really naturalized plant in our area — in eastern Pennsylvania or New Jersey. I have occasionally found it in

[1] The railroad has been run through a yard and garden, however, and the Larkspur is continually replenished as an escape from the old garden at the top of the cut.

[2] He makes an interesting suggestion that its behavior would lead one to suspect that it is a plant that depends on newly stirred ground to obtain a footing.

alleys in West Philadelphia, probably originating from old plants which had been thrown over a fence the preceding Fall."

Dr. Witmer Stone, one of the most energetic explorers of southern New Jersey and familiar with many parts of Pennsylvania, recalls having seen only a few roadside plants in Germantown, Philadelphia. Dr. John W. Eckfeldt records a couple of plants with Alfalfa used as a binder on the railroad banks below Haddonfield, New Jersey. Dr. Arthur Jones recalls the plant in some of the old towns of southern New Jersey but always as a rare garden escape or upon dumping grounds.

Professor W. A. Kline of Ursinus College, who is familiar with the Parkiomen Valley, considers it a very rare plant of roadsides or dumps. Mr. Joseph Crawford notes a rare occurrence on dumps and waste ground, often due to the thrown out dead plants of the previous year. Mr. W. H. Leibelsperger, working in Berks County, Pennsylvania, records the species as very rare along roadsides.[1] None of these observers have ever seen the plant anywhere actually naturalized.

Dr. J. M. MacFarlane and Dr. John W. Harshberger of the University of Pennsylvania, both of whom have had wide field experience in the local area, are in agreement that this is a plant never straying far, in their experience, from its source in cultivation, or becoming independently established.

Not merely the mechanical difficulties of endeavoring to obtain reports from collectors all over the eastern United States have led me to confine this expression of opinion to collectors from the Philadelphia region, but the fact that this area lies midway in the eastern range accorded the species would seem to offer a fair mean of conditions. As a suggestion of the probable verity of this, of the three collectors reporting the plant in the Connecticut Catalogue, Dr. Eames writes me: "In regard to *D. Ajacis* being really naturalized in any case would say that it persisted for many years about a garden in Bridgeport. In one other instance it appeared to be thoroughly naturalized along a roadside, upon ledges in thin, rather dry soil, and in an adjoining field in Weston, Connecticut, when seen some years ago — a station, however, but little more than a stone's throw from an old house, although in land not under cultivation in recent years,

[1] Mr. Leibelsperger, in correspondence, speaks of this, *or another species*, occurring in grainfields in his vicinity. It is rather confidently expected that this will prove to be *D. Consolida*, but specimen evidence is unfortunately not available at this writing.

or in large part a natural sterile waste"; while Mr. Bissell says boldly that he does not know it as a good escape or persisting; and Mr. Harger characterizes it as "a fugitive garden escape" which he has seen only by roadsides. It would seem probable that the same general opinion obtains in Connecticut as in the Philadelphia area. From the Eastern Shore of Maryland — to turn in the opposite direction — Rev. J. P. Otis, while noting that a *Delphinium* has for several seasons been apparently taking care of itself in a door yard and the adjoining truck-patch in the village of Sharptown, writes that his observations are in agreement with those of the Philadelphia botanists. May there be added this last evidence — which almost exactly voices my own — that of Mr. W. W. Eggleston: "My own personal experience with *D. Ajacis* in the field is very limited, never having collected it more than two or three times. It has always been as a chance seedling."

If an opinion from the Philadelphia area may be taken as typical for the eastern United States, it will be agreed that *D. Ajacis* must be recognized as one of the weaker elements of our flora. But whatever its actual status it is to be recognized among our notable garden escapes, though the fact of its thorough naturalization would seem to be still open to some question.

There are comparatively few statements in the more recent local floras, even when the two species are distinguished, which can be taken at their full value in searching for information on the frequence of *D. Ajacis*. The statement in *The Plant Life of Maryland* that *D. Ajacis* is "infrequent" appears hopeful till it is balanced with *D. Consolida* occurring "Throughout the state .... common." There are so many general statements of state-wide frequence in this volume that one cannot but suspect that tradition is in large measure responsible rather than accurate observations. It is of interest to note that in the *Catalogue of the Flowering Plants and Ferns of Connecticut*, where statements on distribution are commonly found so credible, the species is reported as "Rare. Escaped from gardens into waste land and fields," only four stations being noted, and it is said to be "Adventive from Europe" rather than credited with the usual phrase, "Naturalized from Europe." Mr. Norman Taylor's statement in his *Flora of the Vicinity of New York* (which includes most of the Philadelphia area) — "An escape from cultivation throughout the range"— is rather noncommittal as to the extent of naturalization shown by the species, but it is to be strongly recommended as being less open to criticism than the average opinion found in manuals and floras.

Delphinium Consolida — to return to this species — is well known in Europe as a weed in grain fields. Bentham [1] succinctly describes it as "A common weed of cultivation" and definitely speaks of it appearing in corn fields in certain parts of England. It is of interest that the source of *D. Consolida* at New Egypt was, as Mr. Grove observes, apparently not gardens but seed in grain.[2] It was particularly gratifying to find that Mr. Harger's *D. consolida* was from "newly-seeded grass-land." He says that it occurred to him at the time that it was introduced with grass seed, although, on consideration, the size of the seed might lead one to doubt this. So many seeds, of varying sizes, are so well known as occurring in bad grass seed that I think it may be safely asserted that the mode of introduction of the Middlebury *D. Consolida* was quite similar to that at New Egypt.

I have been able to find practically no complete and satisfactory evidence of *D. Ajacis* occurring in grain- or grass-fields. Moreover, I am under the impression that the annual Larkspur commonly seen in gardens is *D. Ajacis*, rarely, if ever, the generally fewer-, smaller-flowered *D. Consolida*. If this is correct, there is a possibility that the source of *D. Consolida* may be very different from that of its near ally, and it may prove to be a field weed here in America as in other countries, rather than a garden escape, as has been suggested by Taylor in the *Flora of the Vicinity of New York*. Further evidence is to be desired at any rate that *D. Ajacis* is to be found as a weed of grain- or grass-fields.[3] The Philadelphia testimony points to this reputed occurrence as being traditional rather than actual. No doubt this has been in some measure due to the statement in European botanies concerning *D. Consolida*.

Though the present noted occurrence of *D. Consolida* may not be considered by some as sufficient evidence for the inclusion again of this species in our flora, it is at least suggestive that here is an opportunity for further field observations before the species is finally dis-

[1] Bentham, Handbook of the British Flora, 22 (1865).

[2] In this connection it is to be noted that as early as 1814 Pursh (Fl. Am. Sept. ii. 372) regards *D. Consolida* as "probably introduced with the seed of grain from Europe." It would seem impossible to decide, however, whether he really had the true *D. Consolida* here in America, or was merely lead to this opinion by a knowledge of the occurrence and habitat of the species in Europe.

[3] Darlington, in the Third Edition of the classical *Flora Cestrica*, under "*Delphinium Consolida*," makes these interesting observations: "This introduced plant is usually to be met with in gardens; and occasionally finds its way into the grain fields of thoughtless people who are in the practice of carrying garden-rubbish into the barn-yard. In such cases it threatens to become a nuisance."

credited to our area. I do not doubt but that many of the rarer introductions holding places in our manuals rest upon as little, or even less, conclusive evidence than that given by *Delphinium Consolida*. One need look no further than among the near allies to find some pertinent cases — for example, *Adonis autumnalis* and *Nigella Damascena*. *Eranthis hyemalis*, for long years holding a traditional but undisputed place in our American flora because naturalized at Bartram's Garden, Philadelphia and in Painters' Arboretum, near Media, Pennsylvania, is distinctly not above suspicion.

It is to be hoped that those who may feel that *D. Consolida* has not been shown eligible to a place in our manuals will also feel constrained to bring critical attention to bear upon the status of *D. Ajacis*.

Academy of Natural Sciences of Philadelphia.

SOME NOTES ON SPARTINA.

M. L. Fernald.

In checking the species of *Spartina* in northeastern America the writer has been surprised to note the recent treatments in the manuals of eastern North America of the coarse smooth salt marsh species. Hitchcock, in the 7th edition of Gray's Manual, following Merrill,[1] treats it as *S. glabra* Muhl., with vars. *pilosa* Merrill and *alterniflora* (Loisel.) Merrill; while Nash, in the 2d edition of Britton & Brown's Illustrated Flora, treats it as *S. stricta* (Ait.) Roth. In the 1st edition of Britton & Brown, Nash, following Gray,[2] had treated the American plants as *S. stricta* with two varieties, though he had added the luminous note, "Our plant does not appear to be satisfactorily identified with the European,"[3]; but in the 2d edition, the varieties have been omitted and with them the clarifying note, and all the American plants reduced outright to the European *S. stricta*. Examination of the European plant, however, shows *S. stricta* to differ from all the material from eastern America not only in the very pilose lemmas emphasized

[1] Merrill, U. S. Dept. Agric. Bur. Pl. Ind. Bull. no. 9, 8 (1902).
[2] Gray, Man. ed. 2, 552 (1856).
[3] Nash in Britton & Brown, Ill. Fl. i. 177 (1896).

by Merrill [1] in keeping the species apart, but in many other characters, which, in view of the recent tendency to reunite the eastern American plants with the European *S. stricta*, it is well to enumerate.

European *S. stricta* has the very short involute leaf-blades distinctly articulated to the firm sheaths, but "they are so readily detached from the sheaths, that by the time the plant is in flower most of the lower sheaths have lost their laminae." [2] This character is very conspicuous in herbarium-specimens of true *S. stricta* of Europe, in which half the blades have sometimes disarticulated; but in the American plant the long leaf-blade and soft sheath are continuous. The ligule of the European *S. stricta* is laciniate,[3] of the American a ring of hairs. And the European *S. stricta* is said by Syme to have the "Stem. . . . easily broken," terms which would not be used to describe the American plant by anyone who has vainly attempted to pull specimens from the marsh. In our plant the rhachis is ordinarily prolonged beyond the spikelets; in *S. stricta* the rhachis, though a little prolonged, rarely exceeds the spikelets. In short, *S. stricta* of Europe is quite unlike its American representative in many definite characters.

The plant of the northern Atlantic coast, from Newfoundland and the lower St. Lawrence to New Jersey, *S. alterniflora* Loisel., is, however, apparently inseparable from the authentic European material of *S. alterniflora*. This was recognized by Gray as early as 1856 and the identity has been admitted by many subsequent American and European students. It is unfortunate, therefore, since *S. alterniflora* Loisel. was published in 1807 and *S. glabra* Muhl. not until 1817, that the later name, *S. glabra*, should have been recently maintained for the species, and with a var. *alterniflora* based upon the earlier-published *S. alterniflora*. The latter name, obviously, has precedence as a specific name and the plants of the North Atlantic coast should be called:

Spartina alterniflora Loisel. Fl. Gall. ii. 719 (1807). *S. stricta*, var. *alterniflora* Gray, Man. ed. 2, 552 (1856). *S. glabra alterniflora* Merrill, U. S. Dept. Agric. Bur. Pl. Ind. Bull. no. 9, 9 (1902); Hitchcock in Gray, Man. ed. 7, 143 (1908).

S. alterniflora, var. **glabra** (Muhl.), n. comb. *Dactylis maritima* Walt. Fl. Carol. 77 (1788), not Curtis (1787). *S. glabra* Muhl. Gram. 54 (1817); Merrill, l. c. 8 (1902); Hitchcock, l. c. (1908). *S. stricta*,

[1] Merrill, l. c. 9.
[2] Syme, Engl. Bot. xi. 5 (1873).
[3] Rouy, Fl. Fr. xiv. 26 (1913).

var. *glabra* Gray, Man. ed. 2, 552 (1856). *S. stricta maritima* Scribn. Mem. Torr. Bot. Cl. v. 45 (1894).

S. ALTERNIFLORA, var. **pilosa** (Merrill), n. comb. *S. glabra pilosa* Merrill, l. c. 9 (1902); Hitchcock, l. c. (1908).

The name *Dactylis maritima* Curtis, Enum. Brit. Gr. (1787) seems to have received less attention than it merits. Linnaeus's *D. cynosuroides* (1753) [1] was to some extent a complex; consisting for the most part of the strictly American species now generally known as *Spartina cynosuroides* (L.) Roth, but with the habitat "Lusitania" appended to "Virginia, Canada," thus indicating that Linnaeus confused with the American plants one of the European species. Slightly later (1758), Loefling, in his *Iter Hispanicum*, published, without mention of the Linnaean species, a very detailed description of another *Dactylis cynosuroides* [2] which from the description ("*Vaginae*.... imbricatae post folia decidua per inferiorem culmum," etc.) is unquestionably the *D. stricta* Ait. Hort. Kew. i. 104 (1789), afterward renamed *Spartina stricta* (Ait.) Roth (1802). Some post-Linnaean English botanists took up Loefling's *Dactylis cynosuroides* for the Sea Cock's-Foot Grass of Europe; for instance, Hudson in his *Flora Anglica*.[3] And when Aiton's *D. stricta* was published in 1789, it was as a substitute for the *D. cynosuroides* of Loefling and of Hudson, which is clearly indicated by his citation of those authors alone, not of Linnaeus. But a very similar publication, with equally definite citations, was earlier effected by Curtis in 1787, when he published his *Dactylis maritima*. Curtis's publication, under *Dactylis*, was in the briefest possible form: "2. Maritima. *H.* 43. *Cynosuroides. R.* 393. 4 Sea." [4] But by inserting the expanded bibliographic citations, as indicated by Curtis's explanation, it becomes:

2. Maritima. Hudson, Fl. Angl. ed. 2, 43, as *D. Cynosuroides* (1778) Ray, Synop. ed. 3, 393, no. 4 (1724) Sea Cock's-Foot Grass.

Dactylis cynosuroides Huds., not L., was the *D. cynosuroides* of Loefling, and is clearly the *D. stricta* of Ait. as indicated not only by

[1] L. Sp. Pl. i. 71 (1753).

[2] Loefl. It. Hisp. 115 (1758).

[3] Huds. Fl. Angl. 25 (1762), ed. 2. 43 (1778).

[4] Curtis, Enum. Brit. Gr. (1787). The writer has not seen the original issue of Curtis's *Enumeration*, which is said to have been a 1-page folio published in 1787. Through the kindness of Miss Marjorie L. Warner of the United States Department of Agriculture, he has learned, however, that in Volume 1 of the *Flora Londinensis* at the Library of Congress, there occurs a 4-page leaflet: "General observations on the advantages which may result from the introduction of the seeds of our best grasses," the 4th page of which is the "Enumeration of the British Grasses," dated at the end: "Botanic-garden, Lambeth-Marsh, August 7, 1787."

Loefling's splendid description but by Aiton's citation. The other component of *D. maritima* Curtis was Ray's no. 4 on p. 393. This was the *Spartum Essexianum, spica gemina clausa* of Petiver's *Graminum Concordium* (1712?), which had been taken up by Ray under the same name, with the citation of various specimens collected by Buddle and others, who were cited by Hudson (ed. 1) under his *D. cynosuroides*. *Spartum essexianum* is placed without hesitation by British authors (Smith,[1] Gibson,[2] *et al*) in the synonymy of *Dactylis stricta* Ait. or *Spartina stricta* (Ait.) Roth. There seems no question, then, that the common European species which is generally known as *S. stricta* should be called

Spartina **maritima** (Curtis), n. comb. *Dactylis cynosuroides* Loefl. It. Hisp. 115 (1758); Huds. Fl. Angl. 25 (1762), ed. 2, 43 (1778); not L. *D. maritima* Curtis, Enum. Brit. Gr. (1787). *D. stricta* Ait. Hort. Kew. i. 104 (1789). *Spartina stricta* (Ait.) Roth, Neue Beitr. 101 (1802).

In view of the identity of the American and European *Spartina alterniflora*, it may be worth while to note that among the European specimens in the Gray Herbarium received as *S. stricta* is one from Aquilega, at the head of the Adriatic Sea, which is certainly typical *S. Michauxiana* Hitchcock.

It is also noteworthy that *S. Duriaei* Parl. Fl. Ital. i. 230 (1848) or *S. versicolor* Fabre, Ann. Sci. Nat. sér. 3, xiii. 123 (1850) of maritime sands of Europe is scarcely separable from *S. patens*, var. *juncea* (Michx.) Hitchc. The European specimens can be closely matched by American; and Durieu himself, who, it may be assumed, would be inclined to maintain *S. Duriaei* if he thought it a good species, treated it without reservation as identical with *S. juncea* (Michx.) Willd.— See Cosson & Durieu, Expl. Sc. Alg. ii. 88 (1849). Ascherson & Graebner (Syn. ii. 84), although maintaining *S. Duriaei*, speak of the "jedenfalls sehr nahe stehenden *S. juncea*."

Gray Herbarium.

[1] Engl. Bot. vi. t. 380 (1797).
[2] Gibson, Fl. Essex. 359, 360 (1862).

SOME WESTERN SPECIES OF PUCCINELLIA.

C. A. Weatherby.

In the course of a recent revision of the northeastern species of *Puccinellia*, undertaken by Prof. Fernald and the writer,[1] considerable comparison with western material was necessary. Incidentally, this comparison showed that the western plants which have been passing as *P. airoides* comprise, besides true *P. airoides*, two other species, rather readily distinguishable from it and from each other. One of these, *P. lucida*, occurs also about the Gulf of St. Lawrence and was included in the revision above-mentioned. A second, apparently undescribed, is so clearly separable that it seems worth recording, though it is entirely western in its range and therefore outside our special field; and it is here proposed as *P. Cusickii*. Two sheets in the Gray Herbarium, one collected at Anderson Valley, Oregon, June 24, 1896, *Leiberg*, no. 2388, the other at Wilson's Station in the Warner Mts. of northeastern California, *Griffiths & Hunter*, no. 390, the latter referred by Hitchcock to *P. airoides* (*P. Nuttalliana*),[2] may represent still another undescribed species. All the plants mentioned are characterized by erose-serrulate lemmas, pubescent below and narrowed above to an acute or blunt apex, not truncate-obtuse as in the group of *P. distans*.

A synopsis of the three species here considered follows. All the specimens cited are in the Gray Herbarium, with the single exception of the specimen of *P. lucida* from British Columbia, which is in the Herbarium of the Geological Survey of Canada.

* *Anther 0.5–1 (rarely 1.2) mm. long.*

+ *Lemma 1.5–2 mm. long, not lustrous; panicle-branches ascending or spreading.*

P. airoides (Nutt.) Wats. & Coult. in Gray, Man. ed. 6,668 (1890).[3] — Yukon and Mackenzie to Montana, Nebraska and New Mexico.

Representative specimens examined:— Montana: Dillon, July 3, 1895, *Shear*, no. 331. Wyoming: open, wet, stony meadows, Centennial, Albany Co., July 26, 1900, *A. Nelson*, no. 7700. Colorado: Doyle's, July 29, 1901, *C. F. Baker*, no. 637; Walsenburg, Huerfano

[1] See Rhodora xviii, 1.

[2] In Jepson, Fl. Cal. pt. 3, 162 (1912).

[3] For full description and synonymy see Rhodora xviii, 16.

Co., July 10, 1896, *Clements*, no. 51. "Rocky Mts." (Powell Expedition), 1868, *Vasey*, no. 615.

+– +– *Lemma 3–4 mm. long, thin and lustrous; panicle-branches often deflexed in age.*

P. lucida Fernald & Weatherby. Rhodora xviii, 16 (1916). Shores of the Gulf of St. Lawrence; Wyoming; British Columbia. Western specimens examined:— Wyoming: damp soil, Washington Ranch, June 29, 1901, *Merrill & Wilcox*, no. 63; in the margins of ponds, Mammoth Hot Springs, July 30, 1899, *A. & E. Nelson*, no. 6017 (this number, as represented in the Gray Herbarium, is partly *P. lucida*, partly *P. airoides*). British Columbia: salt marshes, Newcastle Island, Departure Bay, July 10, 1908, *J. Macoun*, herb. Geol. Surv. Can. no. 81,001.

* * *Anther 1.5–1.8 mm. long; lemma 2.5–3 mm. long; panicle-branches ascending or spreading, lax and flexuous.*

P. **Cusickii**, n. sp. Caespitosa perennis, 3.5–10 dm. alta viridis; culmis glabris laevibusque; foliorum caulinorum laminis 3–14.5 cm. longis 1–2 mm. latis exsiccatis plus minusve involutis subtus laevibus supra minute scabris valde nervatis, marginibus scabriusculis; ligula 1.5–2.5 mm. longa; panicula 0.4–3.5 dm. longa, plerumque exserta, rachi scabra, ramis filiformibus 2–5-verticillatis scabris adscendentibus vel patentibus laxis subflexuosis imprimis supra mediam partem floriferis, infimis usque ad 13 cm. longis; pedicellis scabris; spiculis 5–9 mm. longis laxe 3–6-floris saepe purpurascentibus, rachilla glabra inter flores in anthesi evidente; glumis tenuibus supra hyalinis minute eroso-serrulatis, inferiore 1–1.5 mm. longa anguste ovata ad apicem acutum angustata obscure 1-nervata, superiore 2–2.5 mm. longa ovata acuta obscure 3-nervata; lemmatibus 2.5–3 mm. longis late ovatis ad apicem acutum vel subacutum plus minusve abrupte angustatis infra subcoriaceis supra hyalinis et eroso-serrulatis basin versus pubescentibus obscure 5-nervatis; paleis lemmata aequantibus lanceolatis ad apicem fimbriato-emarginatum paullum angustatis, nervis supra scabris infra ciliatis; antheris (exsiccatis) 1.5–1.8 mm. longis purpureis; caryopsi immatura 1.6 mm. longa.

Cespitose perennial, green: culms 3.5–10 dm. high, rather slender, little if at all geniculate, smooth and glabrous: cauline leaves 3–14.5 cm. long, 1–2 mm. wide, in dried specimens more or less involute, smooth beneath, the margins and the prominently nerved upper surface minutely scabrous; ligule hyaline, 1.5–2.5 mm. long: panicle usually exserted, in small specimens short (down to 4 cm.) and narrow, in well-developed plants diffuse, ovoid-pyramidal, up to 3.5 dm. long; the rachis and branches scabrous, the latter 2–5 together, capillary, ascending or spreading, lax and somewhat flexuous, floriferous chiefly above the middle, the lowest up to 13 cm. long: spikelets often purple-tinged, 5–9 mm. long, loosely 3–6-flowered, the glabrous rachilla visible between the lemmas at anthesis: glumes thin, hyaline and

minutely erose-serrulate above; the first 1–1.5 mm. long, obscurely 1-nerved, rather narrowly ovate, tapering to an acute tip; the second 2–2.5 mm. long, obscurely 3-nerved, ovate, acute, the mid-nerve often minutely scabrous above: lemmas 2.5–3 mm. long, broadly ovate, rather abruptly narrowed to an acute or acutish tip, firm in texture below, hyaline and erose-serrulate above, pubescent toward the base, obscurely 5-nerved: palea about equalling the lemma, lanceolate, slightly narrowed to the fimbriate-emarginate tip, scabrous on the nerves above, ciliate below: anthers in dried specimens 1.5–1.8 mm. long (somewhat longer when boiled out and perhaps in fresh material), purple: immature grain 1.6 mm. long.— "Saskatchewan" and Assiniboia to Wyoming and eastern Oregon. "SASKATCHEWAN": *Bourgeau*, 1858. ASSINIBOIA: salt marshes, Cypress Hills, July 31, 1880, *John Macoun*. WYOMING: Little Laramie River, 1897, *T. A. Williams*, no. 2291. OREGON: in alkaline alfalfa meadows, Grande Ronde Valley, 930 m. alt., June 30, 1908, *Cusick*, nos. 3269 and 3271 (the latter TYPE in Gray Herb.)

In the character of its inflorescence and in its large anther resembling *P. Lemmoni*, but lacking the dense basal tufts of involute-setaceous leaves which seem to be characteristic of that species and differing further in its pubescent lemma and glabrous rachilla. In *P. Lemmoni* the lemma is glabrous, but the callus pubescent and the rachilla of the spikelets is more or less pubescent or scabrous.

EAST HARTFORD, CONNECTICUT.

VARIANTS OF ASTER HERVEYI.

E. WILLIAMS HERVEY.

IN examining a number of specimens of *Aster Herveyi*, the writer discovered some forms differing from the described type especially in the size and shape of the leaves, which varied from broadly ovate, acute at tip, and rounded or slightly heart-shape at base to ovate-lanceolate or lanceolate; some even tapering at base into a more or less margined petiole. The broader leaf-form resembles *Aster macrophyllus* and is found most abundant in its neighborhood. The narrower leaf-form is found in dryer soil where *Aster spectabilis* is more common. These two forms often are so similar to the above species as to be scarcely distinguishable. *A. macrophyllus* and *A. spectabilis* are usually found in the vicinity of *A. Herveyi*. The same root of *A.*

Herveyi has been seen to bear root-leaves of the two extreme forms mentioned. From the foregoing facts as well as others it is manifest that *A. Herveyi* is a hybrid.

Unlike other Aster hybrids, however, which are rarely found except singly or two or three together *A. Herveyi* has been found in colonies of a rod or two in extent and then beyond scattering over several acres of an open woodland. This hybrid may be propagated at least in part by seed as shown from the following: Next to a garden containing a bed of transplanted *A. Herveyi* there was a vacant grass-grown lot. In course of time the lot was ploughed and planted and in a year or two after several specimens of *A. Herveyi* were found growing and in bloom on one side where the soil had been disturbed. These must have originated from self-sown seed from the garden as none existed there before.

New Bedford, Massachusetts.

Autumn Excursion of the New England Botanical Club.—It was the unanimous desire of the twelve men who braved the rainy weather of June 10 and 11 on Cape Cod this year, that there should be a similar or larger excursion to Hyannis in September. Accommodations are available at the Hyannis Inn at $2.50 per day. Fare from Boston is $1.92 each way. The Committee has set Sept. 15–17 for this excursion. It is hoped that everyone will be back from vacations at this time and ready for one more good trip before the season closes.

The June excursion brought several additions to the flora of Cape Cod, and a few to that of New England. Southeastern Massachusetts has furnished a larger number of plants new to our flora during the past eight years than any other section of New England. The area is large, and the workers have been few. May this excursion prove to be the largest and most successful in the history of the Club.—Clarence H. Knowlton, Chairman of Excursion Committee.

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